ARI Research Note 88-22

Project A
Improving the Selection, Classification and
Utilization of Army Enlisted Personnel

Appendixes to ARI Technical Report 717:

Development and Field Test of Task-Based MOS-Specific Criterion Measures

Volume 6 — Appendixes K - O

Charlotte H. Campbell, Roy C. Campbell
Human Resources Research Organization

Michael G. Rumsey
Army Research Institute

Dorothy C. Edwards
American Institutes for Research

for

Selection and Classification Technical Area
Lawrence M. Hanser, Chief

Manpower and Personnel Research Laboratory
Newell K. Eaton, Director

U.S. Army
Research Institute for the Behavioral and Social Sciences

April 1988

U. S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

WM. DARRYL HENDERSON
Colonel, IN
Commander

Research accomplished under contract
to the Department of the Army

Human Resources Research Organization

Technical review by:

Jane M. Arabian
David W. Witter

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE

ADA202836

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION: Unclassified	1b. RESTRICTIVE MARKINGS: - -
2a. SECURITY CLASSIFICATION AUTHORITY: - -	3. DISTRIBUTION/AVAILABILITY OF REPORT: Approved for public release; distribution unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE: - -	
4. PERFORMING ORGANIZATION REPORT NUMBER(S): - -	5. MONITORING ORGANIZATION REPORT NUMBER(S): ARI Research Note 88-22
6a. NAME OF PERFORMING ORGANIZATION: Human Resources Research Organization; 6b. OFFICE SYMBOL (If applicable): HumRRO	7a. NAME OF MONITORING ORGANIZATION: U.S. Army Research Institute for the Behavioral and Social Sciences
6c. ADDRESS (City, State, and ZIP Code): 1100 South Washington Street, Alexandria, VA 22314-4499	7b. ADDRESS (City, State, and ZIP Code): 5001 Eisenhower Avenue, Alexandria, VA 22333-5600
8a. NAME OF FUNDING/SPONSORING ORGANIZATION: - -; 8b. OFFICE SYMBOL (If applicable): - -	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER: MDA 903-82-C-0531
8c. ADDRESS (City, State, and ZIP Code): - -	10. SOURCE OF FUNDING NUMBERS: PROGRAM ELEMENT NO. 63731A; PROJECT NO. 2Q2637-31A792; TASK NO. 2.3.2; WORK UNIT ACCESSION NO. 2.3.2.C1

11. TITLE (Include Security Classification): Appendixes to ARI Technical Report 717: Development and Field Test of Task-Based MOS-Specific Criterion Measures, Volume 6

12. PERSONAL AUTHOR(S): Charlotte C. Campbell, Roy C. Campbell (HumRRO), Michael G. Rumsey (ARI), and Dorothy C. Edwards (American Institutes for Research)

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final Report	FROM Oct 83 TO Sept 85	April 1988	28

16. SUPPLEMENTARY NOTATION: Michael G. Rumsey, contracting officer's representative. RN is part of "Project A: Improving the Selection, Classification, and Utilization of Army Enlisted (OVER)

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number): Classification; Criterion Measures; Soldier Effectiveness; Hands-on Tests; Job Experience; Project A Field Test; Knowledge Tests; MOS-Specific Tests; (OVER)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The materials presented in this series of research notes were prepared as part of Project A, the Army's current large-scale manpower and personnel effort to improve the selection, classification, and utilization of Army enlisted personnel. This portion of the Project A research dealt with the development and field tryout of task-based MOS-specific knowledge tests, hand-on tests, task performance ratings, and job experience questionnaires for nine Military Occupational Specialties (MOS), and is reported in ARI Technical Report 717. Job Performance domains were derived from Army Occupational Survey Programs (AOSP) results, Soldier's Manuals, and Proponent Agency input. Subject matter expert judgments of task criticality, difficulty, and similarity were used to select tasks for test development. All tests were pilot-tested on Skill Level 1 soldiers and noncommissioned officers. Field tests were conducted among 114-178 soldiers per MOS. Results were used to revise the instruments and to provide evidence of reliability and validity. Proponent agencies provided technical reviews before the field tests and after the instruments were revised. (OVER)

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL: Lawrence M. Hanser	22b. TELEPHONE (Include Area Code): 202/ 274-8275; 22c. OFFICE SYMBOL: PERI-RS

DD Form 1473, JUN 86 — Previous editions are obsolete. — SECURITY CLASSIFICATION OF THIS PAGE

UNCLASSIFIED

ARI RESEARCH NOTE 88-22

16. Supplementary Terms (continued)

Personnel" (Human Resources Research Organization, American Institutes for Research, Personnel Decisions Research Institute, U.S. Army Research Institute).

18. Subject Terms (continued)

Performance Ratings
Selection

19. Abstract (continued)

Hands-on and knowledge tests exhibited reasonable performance variability, as did the rating scales. Correlations between the two test methods were high, but do not suggest that either should substitute for the other. Rating scales correlated more highly among themselves than with the tests, as would be expected from their surface dissimilarity and affective focus. Job experience emerged as a potentially important factor in explaining performance variability.

The instruments were finalized for the upcoming Concurrent Validation, where they will serve as criterion measures for a new predictor battery designed to supplement the Armed Services Vocational Aptitude Battery (ASVAB). (SDW)

ARI Technical Report 717, Development and Field Test of Task-Based MOS-Specific Criterion Measures, describes the development and field test of the measures discussed above. The 22 appendixes to that report are presented in 10 volumes. This volume, Volume 6 in the series, presents 5 of the 10 appendixes which have unlimited distribution. Volume 1 in this series presents the remaining 5 unlimited distribution appendixes. The remaining 8 volumes contain the 12 appendixes that have limited distribution.

APPARENT SECURITY CLASSIFICATIONS WITHIN THIS DOCUMENT ARE FOR
TEST PURPOSES ONLY AND DO NOT REPRESENT ACTUAL ARMY CLASSIFICATIONS

Page left blank for pagination purposes.

APPENDIXES TO ARI TECHNICAL REPORT 717:

DEVELOPMENT AND FIELD TEST OF TASK-BASED MOS-SPECIFIC CRITERION MEASURES

Volume 6

Page left blank for pagination purposes.

APPENDIX K

Hands-On Scorer Training Materials

OVERVIEW OF
HANDS-ON TRAINING AND TEST ADMINISTRATION

GUIDANCE FOR HOM

A. Pre-training

1. Familiarize yourself with the station setup and each individual test. Even if you are familiar with the tasks, re-read them before you go to scorer training.

2. Visit the hands-on site and decide where each station will be located and where control points for examinees will be.

3. Contact the units that are providing the equipment and the scorers and make sure they know when and where to be. Do this the day before scorer training even though prior coordination has been made.

B. Scorer Orientation

1. For the first hour or two of scorer orientation meet all the scorers in a comfortable setting--a classroom if possible. Pass out the Hands-On Scorer Roster and have the scorers fill out the information (except the Station Assigned). Issue a copy of the Hands-On Scorers' Orientation Outline hand-out to each scorer and go through the Scorer Orientation Briefing. Outline the activities to follow in Scorer Training and during Test Administration. Ascertain that the scorers must be present during the entire test period (no TDY, schooling, duty or personal appointments.)

2. Pass out a copy of the Station List/Equipment List to each of the scorers. Explain any tests that are modified from their task titles. Tell the scorers that you want them to choose which station they will be scoring--the tasks they are most familiar with and will be the most comfortable scoring. Then start with the first station and make the assignments. If no one wants a station, or two people want the same station, you make the judgment based on your judgment as to who is most familiar with the tasks.

3. Write down the assignments on the Scorer Roster. If you have more scorers than stations, keep them. Assign them to the most difficult stations (in your judgment). You may modify your station assignments during or after scorer training.

4. Pass out copies of the tests assigned to each scorer. Go over the general organization of the Scorer's Instructions and Scoresheet. Pass out a copy of the Station Cards (carried by each soldier tested) and explain how the scorers will obtain the Scorer ID Number and initial when a soldier completes the station. Go through the heading of the scoresheet and stress the importance of accurately filling in the scorer's name, soldier's name, and ID number.

K.1 Overview of Hands-On Training and Test Administration

5. Before leaving the classroom setting each scorer must read the Scorer's Instructions and Scoresheets for his tests. Allow enough time for this and for slow readers. The importance of reading their materials deserves emphasis. Many later problems arise because scorers have not thoroughly read the printed materials provided.

C. Scorer Training

1. Move to the hands-on location and coordinate distribution of equipment to each station. Have each scorer set up his test station and equipment in accordance with the Scorer Instructions.

2. Have scorers take turns acting as examinees on each station. The actual scorer should administer and score the test exactly as required for actual testing.

3. You must observe a minimum of one practice administration of each station. Watch the entire administration from restoring equipment conditions to filling out the scoresheet. Critique the scorer, both good and weak points, after the administration. Be specific in your debrief. Don't ask the scorer if he has any problems--they will usually reply that they don't. It's up to you to identify problems. Always give specific solutions to problems that you identify.

4. For each task, be prepared to introduce common or likely errors via the "examinee" to insure the scorer reacts properly to unusual situations.

5. Some scorers will need to practice all or certain parts of th scoring process several times. How many times depends on the scorer and the task. A minimum of two run throughs is usually required; some scorers will require many more. But do not have a scorer continue to practice on his own just to have him doing something while you check out the rest of the practices. The most worthwhile practices are the ones you observe.

6. Take note of scorer weaknesses as a basis for later monitoring. Where errors are observed try to relate the error to either the scoresheet or Scorer's Instructions as a foundation for correction. This will give the scorer a specific reference for future behavior. Stress to scorers that they are not to modify or deviate from the instructions and measures they have been given. Make sure that they know to summon you during test administration if any situation arises that they are not sure of and not to react on what they think should be done.

7. Before dismissing scorers from scorer training, debrief them in a group if possible. Reiterate the fundamentals of scoring and make sure they know their commitments for the test period. Keep the debriefing upbeat and positive.

D. Test Administration

1. Assemble the scorers just prior to the first session's administration and stress again the requirement to call you for any unexpected developments. Check each station and equipment setup prior to the arrival of troops.

2. During the first two hours of the first session, visit each station and observe one administration of each complete station. Concentrate initially on those weak areas and/or scorers you noted during training. But don't ignore the other stations. Scorers will react differently when actual soldiers are involved and new problems will arise. Be alert for troop control.

3. Check scoresheets frequently, especially immediately after observing a performance to see if your observation corresponds with the scoresheet.

4. Make corrections, offer advice to scorers as necessary but always away from the troops being tested. Offer encouragement and sincere commendations as well.

5. Continue to circulate to stations throughout the test sessions. Be alert for signs of scorer fatigue, indifference or sloppiness especially toward the end of test sessions.

6. Consistent with test requirements, insure that scorers get short breaks to have a cigarette, refreshment or go to the latrine. Some tests are more fatiguing than others. Try to spare these scorers for slightly longer periods by having someone take the station for a few iterations, if personnel resources allow.

7. Don't assume that things are going all right just because soldiers appear to be moving through a station. Check everything--and more than once. If you don't take anything for granted, neither will your scorers.

8. When multiple test administrations are used, analyze the scoresheets between sessions. Be alert for a pattern of all GO performance, "impossible" performance, inconsistent rating, incomplete rating. Make corrections before the next test session and direct your monitoring towards those stations.

HANDS-ON SCORERS ORIENTATION
(Handout)

OVERALL OBJECTIVE OF THE PROJECT

- To look at how well entry tests (like ASVAB) predict actual job performance.
- Three parts to the project:
  1. Select, develop and try-out entry tests.
  2. Develop and try-out job performance measures.
  3. Look at the relationship between the entry test and job performance measures.

OBJECTIVE OF THIS PHASE

- Administer job performance measures
  1. Written tests
  2. Ratings by supervisors and peers
  3. Hands-on measures
- Administer "entry" tests

OBJECTIVE OF ADMINISTRATION OF HANDS-ON MEASURES

- Administer tests in a standardized manner.
  1. Equipment conditions and set-up.
  2. Scorers' manner and method of scoring:
     a. Treat all soldiers professionally.
     b. Present instructions as written.
     c. Score every performance measure.
- Test, don't train.
  1. Unless specific instructions say so, do not tell soldiers how to do any step.
  2. Instruct soldiers: "Do the best you can."
  3. If a soldier cannot perform a step after trying:
     a. Score the step NO-GO.
     b. Tell the soldier: Go on with the rest of the task.
     c. If a soldier cannot continue, write "stopped" under COMMENTS and score the rest of the measures NO-GO.
  4. Provide NO Feedback:
     a. Be careful what you say.
     b. Watch your expressions.
- Good scorers are the most important part of hands-on testing.

K.2 Hands-On Scorer Orientation Handout

SCORER ORIENTATION BRIEFING

The overall purpose of this project is to develop a comprehensive selection and classification system for the Army. The major part of the work is to look at the relationship between how well soldiers do on the entry tests (like ASVAB) and how well they do on the job. At this post SL1 soldiers in nine MOS will take four kinds of measures; one kind is hands-on measures. For these hands-on measures soldiers will perform about 15 of the tasks required by their job.

The success of the hands-on tests depends on you, the scorers who will rate each soldier's performance. We will ultimately test over 1,000 soldiers at many different locations. About 30 different scorers will evaluate some soldiers on the same task. For the results to mean anything, things must be as much the same as we can make them--regardless of where the installation is, or who is doing the scoring. For that to happen all your actions as a scorer must be guided by two principles:

- Be sure the test conditions are the same for every soldier.
- Apply the standard evenly to every soldier.

Let's consider the first principle. The test conditions are all the factors that determine the difficulty of a task. For example, think of the test conditions for a task like changing the tire on a quarter ton truck. The test is more difficult outside than inside the motor pool. If the test is outside, it is harder on a hill than on hardstand. The test is also harder if you do not have the right tool or if the tools do not work correctly. It is also harder to change the tire by yourself than if someone helps you.

The people who wrote the tests have described the general requirements, please do not deviate from their guidance without working through (the HOM). There may also be times when you will find some variations in the equipment that the developer did not anticipate. For example we may not have requested all the necessary tools or some tool we did request may not work correctly. In all such cases notify (the HOM) immediately. The results will not mean anything if the conditions are not the same.

The results also will not mean anything if every scorer does not apply the standard evenly to every soldier. The standard describes how well a soldier must do a task to pass the test. The standard is listed as performance measures. For tests where you must watch a soldier do the task, the performance measures tell you what steps must be done, how to tell if the step is done right, if the steps must be done in a certain sequence, and whether there is a time limit. For tests where you must check the soldier's work after the test (such as filling out a form), the performance measures tell you what points to check and the time limit. In both cases, every performance measure is important and should be applied in the same way to every soldier.

Now let's consider some implications of these two principles. First you must maintain the test conditions so that soldiers at the end of the day do not get help from the equipment or station. You may need to clean equipment periodically or clean up around the station to get rid of clues. Also you may need to do some set up steps before each soldier. If you do, the cover sheet will tell you what steps are needed. Keep that sheet with you.

K.3 Scorer Orientation Briefing

Your first contact with the soldiers you test will be when you read the instructions. Be sure you read them precisely as they are written on the scoresheet.

When you read the instructions, and in all your contact with soldiers being tested, your facial expression, voice inflection, and posture should be the same. You may hope people you like do well and people you do not like do poorly, but you must treat everyone the same. Your facial expression, voice, and posture must not threaten soldiers you test. Your demeanor should be objective, professional, and non-threatening.

In most cases you will score the test by watching the soldier perform the task. Try to mark the performance measures as the soldier performs the task. If you wait until the end, you may forget what happens. If you only mark the mistakes, soldiers might get too much information on how well they are doing. If something happens that you are not sure how to score, jot down a reminder of what happened under COMMENTS and get with (the HOM) before you test the next person.

When you evaluate performance, rate each measure, do not add check-points to the scoresheet and do not ignore any performance measure.

There is one tendency that is especially troublesome. If you are like most good NCOs, you will want to train soldiers on the task. If you see someone make a mistake, every fiber of your NCO body will ache to correct the mistake. It is important, though, that you hold back. Part of the information we must collect tells how well people do on different kinds of tests for the same task and how their score changes from time to time. If there are differences between the types of tests or between the times soldiers are tested, we will conclude that something is wrong with the test. To correct the problems, we need to be sure that the cause of changes was not that you told them the right way. So the rule is--Provide No Feedback.

Another reason for not training soldiers is the first principle--every soldier must be treated the same not only by you, but by every scorer in CONUS and Europe. For the same reason you must be careful how you react when soldiers have problems during the test. Unless (the HOM) or your test instructions tell you differently, do not tell soldiers how to do any step. If the soldier gets stuck or says he or she does not know what to do next, say, "Do the best you can." Allow about one minute and say "Go on with the rest of the task." If the soldier cannot go on, write "stopped" under COMMENTS and mark the rest of the measures in this section NO-GO. If you think a soldier is pretending not to be able to do anything, write "no effort" under COMMENTS and send the soldier to the control NCO.

We conclude with the same point we started with. You are the most important person for us to get information on these tests that means anything. A lot of things can go wrong in this kind of project, but we must know that the scorers did their job.

K.3 (Cont'd.) Scorer Orientation Briefing

Page left blank for pagination purposes.

APPENDIX L

Knowledge Test Monitor Instructions

MONITOR INSTRUCTIONS
13B K-Tests

1. In the initial test session, pass out 7 copies of Test Booklet A1 and 7 copies of the white answer sheet and 8 copies of Test Booklet A2 and 8 copies of the green answer sheet. Make sure that every one who has a green answer sheet has a green cover sheet on their test booklet and the same for white. The next test session, use 8 copies of white; 7 copies of green and so on throughout the test session to keep the number of each test version used even.

2. Use the following test schedule sequence.

Test Session 1:	A - 1/2	Test Session 6 (b):	B - 1/2
	B - 1/2		C - 1/2
	C - 1/2		D or E - 1/2
	D or E - 1/2		A - 1/2
Test Session 2:	B - 1/2	Test Session 7:	C - 1/2
	C - 1/2		D or E - 1/2
	D or E - 1/2		A - 1/2
	A - 1/2		B - 1/2
Test Session 3 (a):	C - 1/2	Test Session 8:	D or E - 1/2
	D or E - 1/2		A - 1/2
	A - 1/2		B - 1/2
	B - 1/2		C - 1/2
Test Session 4 (a):	D or E - 1/2	Test Session 9:	A - 1/2
	A - 1/2		B - 1/2
	B - 1/2		C - 1/2
	C - 1/2		D or E - 1/2
Test Session 5 (b):	A - 1/2	Test Session 10:	B - 1/2
	B - 1/2		C - 1/2
	C - 1/2		D or E - 1/2
	D or E - 1/2		A - 1/2

(a) Test Sessions 3 and 4 are conducted simultaneously.

(b) Test Sessions 5 and 6 are conducted simultaneously.

3. Separate the M109 and M110 soldiers at the beginning of each session. All soldiers will take test groups A, B, and C 1 or 2. Only M109 soldiers will take Group D 1/2 and only M110 soldiers will take Group E 1/2.

4. Make sure each soldier has a sharpened pencil with an eraser. Sharp pencils are a must for Test Booklet B 1/2 for the "Azimuth with Protractor" test.

L.1 Sample Monitor Instructions (Batch A)

5. Read the following instructions to the soldiers:

DURING THE NEXT FOUR HOURS YOU WILL BE COMPLETING WRITTEN TESTS ON TASKS IN YOUR MOS. THE TEST IS DIVIDED INTO 4 BOOKLETS AND COVERS ALTOGETHER 30 TASKS. YOUR FIRST BOOKLET IS ON YOUR DESK. YOU WILL NOTICE THAT THE BOOKLET HAS A COVER SHEET WITH THE LETTER (A,B,C,D,E) ON IT FOLLOWED BY EITHER THE NUMBER ONE OR THE NUMBER TWO. M109 SOLDIERS WILL TAKE A,B,C,D BOOKLETS WHILE M110 SOLDIERS WILL TAKE A,B,C,E BOOKLETS. YOU WILL ALSO NOTICE THAT YOUR COVER SHEET ON YOUR TEST BOOKLET IS EITHER WHITE OR GREEN. NOW PICK UP YOUR ANSWER SHEET. IF YOUR TEST BOOKLET HAS A WHITE COVER SHEET, THEN YOUR ANSWER SHEET MUST ALSO BE WHITE. IF YOUR TEST BOOKLET HAS A GREEN COVER SHEET THEN YOUR ANSWER SHEET MUST ALSO BE GREEN. IS THERE ANYONE WHOSE SHEETS DO NOT MATCH? (Pause-Check) THE FIRST THING I WANT YOU TO DO IS TO WRITE YOUR NAME AND SOCIAL SECURITY NUMBER ON THE SIDE OF THE ANSWER SHEET. ALSO THE DATE. DO THAT NOW. (Pause-Check) ABOVE THE DATE WRITE IN THE LETTER AM (PM). (Pause)

NOW LOOK AT YOUR ANSWER SHEET. NOTICE THAT YOUR ANSWER SHEET IS DIVIDED INTO BLOCKS A 1 OR 2 AND B 1 OR 2 ON THE FRONT AND C 1 OR 2 ON THE BACK. ALL M109 SOLDIERS SHOULD HAVE D 1 OR 2 AND M110 SOLDIERS SHOULD HAVE E 1 OR 2. MAKE SURE THE BLOCK YOU ARE WORKING IN MATCHES THE LETTER AND NUMBER ON YOUR TEST BOOKLET. THE NAMES OF THE TASKS ARE ON THE ANSWER SHEETS TO HELP YOU.

WHEN YOU TAKE THE TEST, READ THE ITEM IN THE TEST BOOKLET AND SELECT THE ANSWER YOU CHOOSE. THEN GO TO THE ANSWER SHEET AND DRAW A LINE OR AN X THROUGH THAT LETTER ON THE ANSWER SHEET. DOES EVERYONE UNDERSTAND? ANY QUESTIONS? (Use an example to illustrate, if necessary) DO NOT, I REPEAT, DO NOT MARK YOUR ANSWERS IN YOUR BOOKLET OR MAKE ANY OTHER MARKS IN YOUR BOOKLET. ONE SHEET OF BLANK PAPER IS PROVIDED FOR YOU TO MAKE ANY COMPUTATIONS ON.

MARK ONLY ONE ANSWER FOR EACH QUESTION. IF YOU WISH TO CHANGE YOUR ANSWER, ERASE YOUR OLD MARKS COMPLETELY. ANSWER EVERY ITEM - THERE IS NO PENALTY FOR WRONG ANSWERS.

WHEN YOU HAVE COMPLETED THE BOOKLET, CHECK YOUR WORK. THEN YOU MAY TAKE A BREAK. LEAVE ALL YOUR MATERIALS ON YOUR DESK. I WILL CALL A MANDATORY 10 MINUTE BREAK IN 50 MINUTES AND ISSUE YOUR SECOND TEST BOOKLET.

DO NOT HURRY YOUR WORK. MOST OF YOU WILL FINISH LONG BEFORE THE 50 MINUTES ARE UP.

FINALLY, I REMIND YOU THAT YOU MUST DO YOUR OWN WORK AND THERE WILL BE NO TALKING ALLOWED DURING THE TEST AND DO NOT TALK ABOUT THE TEST DURING YOUR BREAK. ARE THERE ANY QUESTIONS?

6. Monitor during the test to insure that each soldier is working within the correct block. This is especially important if the group starts other than on the A block.

L.1 (Cont'd.) Sample Monitor Instructions (Batch A)

7. If any soldier needs to leave the immediate break area, insure they have your permission. If all soldiers complete a booklet before the 50 minutes are up, begin the next test session 10 minutes after the last soldier finishes. If there is a soldier who is unusually slow, you may allow her to work through the break if they choose to do so. But start that soldier on the next booklet along with the others.

8. When soldiers are taking Test Booklet B 1/2, for the task "Measure Azimuth With A Protractor," you must pass out 1 protractor, GTA 6-5-2 and 1 copy of Ft. Knox Map Extract. Soldiers should draw lines on the map, therefore, each soldier tested will need a fresh map. Insure protractors are collected when test is completed.

Test booklet C 1/2, task "Prepare DA Form 2404," requires the TM Extract on the 1/4 ton truck. Remind the soldiers that they must use the extract to answer parts of the test.

9. When testing Booklet B 1/2 for task "Prepare Ammunition," call the soldiers attention to the ammunition charts in the booklet. He will use these to identify ammunition and use the corresponding letter for each item to record his responses on the answer sheet.

10. When testing Booklet D 1/2 or E 1/2, you must hand out to each soldier the TM Extract for either the M109 or the M110 howitzer. The TMs are used with "Perform PMCS on Howitzer."

11. Remind soldiers that they must use the TM Extract for the PMCS tasks. They are not to mark in the TM Extract.

L.1 (Cont'd). Sample Monitor Instructions (Batch A)

MONITOR INSTRUCTIONS
TASK KNOWLEDGE TESTS

1. Within each session, use the same number of white and unwhite (Series 1 and 2) booklets. Use the following test schedule sequence:

Test Session 1:	A	1 (White) or 2 (Yellow, Blue, or Pink)
	B	1 (White) or 2 (Yellow, Blue, or Pink)
	C	(White or Yellow) (11B only)
Test Session 2:	B	1 (White) or 2 (Yellow, Blue or Pink)
	C	(White or Yellow) (11B only)
	A	1 (White) or 2 (Yellow, Blue, or Pink)

Make sure that everyone who has a white answer sheet has a white cover sheet on their test booklet and the same for unwhite. Do not let soldiers open the test booklets until you tell them to.

2. Make sure each soldier has a sharpened pencil with an eraser. Also, have available scrap paper for the soldiers to use for any computations required, and extra pencils.

3. Read the following instructions to the soldiers:

DURING THE NEXT FOUR HOURS YOU WILL BE COMPLETING WRITTEN TESTS ON TASKS IN YOUR MOS. THE TEST IS DIVIDED INTO 2 (11B: 3) BOOKLETS AND COVERS ABOUT 30 TASKS. YOUR FIRST BOOKLET IS ON YOUR DESK. YOU WILL NOTICE THAT THE BOOKLET HAS A COVER SHEET WITH THE LETTER (A or B) ON IT FOLLOWED BY EITHER THE NUMBER ONE OR THE NUMBER TWO. YOU WILL TAKE A AND B (11B: A, B, AND C) BOOKLETS. YOU WILL ALSO NOTICE THAT YOUR COVER SHEET ON YOUR TEST BOOKLET IS EITHER WHITE OR YELLOW. NOW LOOK AT YOUR ANSWER SHEET. IF YOUR TEST BOOKLET HAS A WHITE COVER SHEET, THEN YOUR ANSWER SHEET MUST ALSO BE WHITE. IF YOUR TEST BOOKLET HAS A (YELLOW) COVER SHEET THEN YOUR ANSWER SHEET MUST ALSO BE (YELLOW). IS THERE ANYONE WHOSE SHEETS DO NOT MATCH? (Pause-Check) THE FIRST THING I WANT YOU TO DO IS TO ENTER YOUR NAME, SOCIAL SECURITY NUMBER, AND DATE ON THE SIDE OF THE ANSWER SHEET. PRINT YOUR NAME, LAST NAME FIRST. (Pause-Check) ABOVE THE DATE WRITE IN AM (PM). (Pause)

NOW LOOK AT YOUR ANSWER SHEET. NOTICE THAT YOUR ANSWER SHEET IS DIVIDED INTO BLOCKS A 1 OR 2 ON ONE SIDE AND B 1 OR 2 (AND D) ON THE OTHER SIDE. MAKE SURE THE BLOCK YOU ARE WORKING IN MATCHES THE LETTER AND NUMBER ON YOUR TEST BOOKLET. THE NAMES OF THE TASKS ARE ON THE ANSWER SHEETS TO HELP YOU.

WHEN YOU TAKE THE TEST, READ THE ITEM IN THE TEST BOOKLET AND SELECT THE CORRECT ANSWER. THEN GO TO THE ANSWER SHEET AND DRAW A LINE OR AN X THROUGH THAT LETTER ON THE ANSWER SHEET. DOES EVERYONE UNDERSTAND? ANY QUESTIONS? (Use an example to illustrate, if necessary) DO NOT, I REPEAT, DO NOT MARK YOUR ANSWERS IN YOUR BOOKLET OR MAKE ANY OTHER MARKS IN YOUR BOOKLET. ONE SHEET OF BLANK PAPER IS PROVIDED FOR YOU TO MAKE ANY COMPUTATIONS ON.

L.2 Monitor Instructions (Batch B)

MARK ONLY ONE ANSWER FOR EACH QUESTION. USE PENCIL. IF YOU WISH TO CHANGE YOUR ANSWER, ERASE YOUR OLD MARKS COMPLETELY. ANSWER EVERY QUESTION--THERE IS NO PENALTY FOR GUESSING.

WHEN YOU HAVE COMPLETED THE BOOKLET, CHECK YOUR WORK. LET ME KNOW WHEN YOU ARE FINISHED, AND I WILL ISSUE YOUR SECOND TEST BOOKLET.

DO NOT HURRY YOUR WORK. MOST OF YOU WILL FINISH LONG BEFORE THE TIME IS UP.

FINALLY, I REMIND YOU THAT YOU MUST DO YOUR OWN WORK AND THERE WILL BE NO TALKING ALLOWED DURING THE TEST. YOU MAY TAKE BREAKS AS YOU NEED TO, BUT DO NOT LEAVE. LEAVE ALL YOUR MATERIALS ON YOUR DESK. PLEASE DO NOT TALK ABOUT THE TEST DURING YOUR BREAK. ARE THERE ANY QUESTIONS? (Wait) OPEN YOUR TEST BOOKLET AND BEGIN.

4. Monitor during the test to insure that each soldier is working within the correct block. This is especially important if the group starts on the B block.

5. If any soldier needs to leave the immediate break area, insure he/she has your permission. All soldiers should start the second booklet by the end of the second hour. When a soldier is finished with all booklets, he/she may leave.

6. Some soldiers may ask questions concerning process or test content. On questions concerning the process, i.e. questions concerning purpose of the test, time limits, test procedures or possible errors in the test (such as spelling), answer the question for the individual and then state the question for the group and answer it for everyone. These questions should be asked/answered only before the testing begins or when everyone is done.

Questions concerning test content should be answered if they are very general questions, i.e. general vocabulary questions or sentence structure. Every effort should be made to avoid prolonged questioning and "giving away" the answer. Do not attempt to answer technical questions. Respond by saying something like: "That is a technical question and part of the area you are being tested on. I cannot help you. Just do your best."

7. As much as possible, keep track of time to complete each booklet.

L.2 (Cont'd.) Monitor Instructions (Batch B)

KNOWLEDGE TESTS
MOS-SPECIFIC INSTRUCTIONS

63B

1. For the test "Determine Grid Coordinates" in Booklet B1/B2, you must hand out maps and protractors. Collect the maps and protractors as soldiers finish with them. Erase any marks made on the map. If marks cannot be erased or if erasures are apparent, throw the map away.

31C

1. One hands-on test will be administered first. Instructions are attached to the test. When all soldiers finish, continue with the knowledge tests.

2. For the test "Determine Grid Coordinates" in Booklet A1/A2, you must hand out maps and protractors. Collect the maps and protractors as soldiers finish with them. Erase any marks made on the map. If marks cannot be erased or if erasures are apparent, throw the map away.

3. When testing Booklet A1/A2, you must hand out the TM extract on maintaining the M17 mask.

19E

1. For the test "Determine Grid Coordinates" in Booklet A1/A2, you must hand out maps and protractors. Collect the maps and protractors as soldiers finish with them. Erase any marks made on the map. If marks cannot be erased or if erasures are apparent, throw the map away.

2. For the test "Perform Gunner's Prepare to Fire Checks" in Booklet B1/B2, you must hand out the M60A3 TM extract.

91A

1. One hands-on test will be administered first. Instructions attached to the test. When all soldiers finish, continue with the knowledge tests.

2. For the test "Determine Grid Coordinates" in Booklet A1/A2, you must hand out maps and protractors. Collect the maps and protractors as soldiers finish with them. Erase any marks made on the map. If marks cannot be erased or if erasures are apparent, throw the map away.

L.2 (Cont'd.) Monitor Instructions (Batch B)

11B

1. When testing "Navigate Point to Point", in Booklet A1/2 you must hand out a protractor and map extract to each soldier. Collect the protractors and maps as soldiers finish that task test. If there are any marks on the map, throw the map away.

2. Test Booklet B1/2, Task "Operate As A Station In A Radio Net," requires the CEOI extract included with the test. Remind the soldiers that they must use the extract to answer parts of the test.

3. When testing Booklet C, you must hand out the M151A1 1/4 ton truck TM extract and the M113A1 carrier extract.

L.2 (Cont'd.) Monitor Instructions (Batch B)

APPENDIX M

Instructions For Hands-On Test Suitability Ratings

SUITABILITY RATING FOR HANDS-ON TESTS

The tasks that were tested hands-on are listed on the next pages. For each MOS where you assisted in scorer-training or test administration, please rate the tasks on the following three dimensions:

Standardization of Conditions

0 = Cannot standardize relevant conditions (environment or equipment), within or among test sites

1 = Some conditions can be standardized

2 = Conditions easily reproduced at each site by local resources

Standardization of Scorers/Scoring

0 = Scorers cannot be trained to score reliably; much scorer judgment or scorer/soldier interaction required; very difficult to observe, measure or record performance

1 = Scorer reliability is usually trainable

2 = Scorers are capable, consistent and reliable; performance is easily observed, measured and recorded

Task/Test Relevance (Fidelity)

0 = Hands-on test does not resemble corresponding task; test performance greatly removed from or reduced from task performance

1 = Hands-on test is somewhat close to task performance, but noticeably not identical

2 = Hands-on test closely resembles task; test performance and task performance nearly identical

For tasks that you did not observe more than once or twice, please mark "NA". Additionally, if you do not know how the task is performed, please mark "NA", for relevance.

APPENDIX N

Procedure For Adjusting Knowledge Test Sets

This appendix elaborates on the procedure summarized in the main body of the companion report, Development and Field Test of Task-Based MOS-Specific Criterion Measures (Campbell, Campbell, Rumsey, & Edwards, 1985, pp. 44-45), for reducing 4-hour knowledge tests to the 2-hour time block made available during Concurrent Validation testing. Following the initial steps described on page 44 of that report, the next step was to generate weights to be used in determining which test mode was best measuring each element of each task. These "weights," which simply represent integer score values, were assigned to both hands-on and knowledge task tests. Weights were assigned to hands-on tests on the basis of the following criteria:

(1) Certainty/Uncertainty. If the task test was not being revised, or the revised test would have a tryout, the test was given a positive score of one. If the task test was being revised and would not have another tryout, it was given a negative score of one.

(2) Difficulty level. If the mean score on a task was at least equal to 15%, and not greater than 85%, the task was given a positive "weight" (score) of one. If the mean score was between 10 and 15%, or between 85 and 90%, the task test received a "weight" of zero. If the mean score was less than 10% or greater than 90%, the weight given was a negative value of one.

(3) Discriminability. If the standard deviation was equal to, or greater than, .15 on a scale of 0 to 1.0 (scores were recorded as percentages), the test was assigned a positive weight of one. If the standard deviation was less than .15 but .10 or greater, the test was assigned a weight of zero. If the standard deviation was less than .10, the test was assigned a negative weight of one.

(4) Reliability. If the split half reliability of the test was .70 or greater, the test was assigned a positive weight of one. If the reliability was less than .70, the test was assigned a weight of zero.

(5) Suitability. Suitability of tasks for hands-on testing was assigned using procedures described in the body of the report and in the instructions shown in Appendix M of this volume. If the suitability score was 5 or 6, the hands-on test was given a positive weight of one. If the suitability score was 4, a zero weight was assigned. Finally, if the suitability score was 3, a negative weight of one was assigned.

Weights were assigned to written task tests on the basis of the following criteria:

(1) Certainty/Uncertainty. If the task test was not being revised, or the revised test would have a tryout, the test was given a positive weight of one. If the task test was being revised and could not have another tryout, it was given a negative weight of one.

(2) Difficulty level. If the mean score on a task was at least equal to 15%, and not greater than 85%, the task was given a positive weight of one. If the mean score was between 10 and 15%, or between 85 and 90%, the task test received a weight of zero. If the mean score was less than 10% or greater than 90%, the task test was given a negative weight of one.

(3) Discriminability. If the standard deviation was equal to, or greater than, .15, the test was assigned a positive weight of one. If the standard deviation was less than .15 but .10 or greater, the test was assigned a weight of zero. If the standard deviation was less than .10, the test was assigned a negative weight of one.

(4) Reliability. If the coefficient alpha of the test, as administered for this particular MOS, was equal to, or greater than, .40, the test received a positive weight of one. If the coefficient alpha of the tests, as administered for the MOS, was less than .40, but the test had typically received coefficient values of .40 or higher when administered for other MOS, the test received a weight of zero. If the coefficient alpha of the test, as administered for this MOS, was .40, and was not typically higher when the test was administered for other MOS, or if the test had not been administered for other MOS, the test received a negative weight of one.

These criteria are summarized in Figure N-1. After the weights for both hands-on and knowledge tests were determined on the basis of these criteria, they were combined and used as shown in Figure N-2.

Feature - Hands-On	Definition	Weight
(1) Certainty/Uncertainty	Task test was not being revised, or the revised test would have a tryout.	1
	Task test was being revised and would not have another tryout.	-1
(2) Difficulty Level	Task test was [not] too easy or too difficult:	
	$P \geq 15\%$ and $P \leq 85\%$	1
	$P < 15\%$ or $P > 85\%$	0
	$P < 10\%$ or $P > 90\%$	-1
(3) Discriminability	Task test standard deviation [not] too low:	
	S.D. $\geq 15\%$	1
	S.D. $< 15\%$	0
	S.D. $< 10\%$	-1
(4) Reliability	Task test internal consistency (split half)	
	$\geq .700$	1
	$< .700$	0
(5) Suitability	Task test suitability ratings across three factors (Standardization of conditions and of scorers, Task/test relevance) [not] too low:	
	Suitability = 6 or 5	1
	Suitability = 4	0
	Suitability = 3	-1
Feature - Knowledge Tests		
(1) Certainty/Uncertainty	Task test was not being revised, or the revised test would have a tryout.	1
	Task test was being revised and would not have another tryout.	-1
(2) Difficulty Level	Task test was [not] too easy or too difficult:	
	$P \geq 15\%$ and $P \leq 85\%$	1
	$P < 15\%$ or $P > 85\%$	-1
(3) Discriminability	Task test standard deviation [not] too low:	
	S.D. $\geq 15\%$	1
	S.D. $< 15\%$	0
	S.D. $< 10\%$	-1
(4) Reliability	Task test internal consistency [not] too low:	
	Alpha $\geq .400$ for this tryout.	1
	Alpha $< .400$ for this MOS tryout, but higher for other tryouts.	0
	Alpha $< .400$ for most tryouts of task test, or if task test had only one tryout.	-1

Figure N-1. Assigning Weights to Hands-On and Knowledge Task Tests

STEPS FOR USING WEIGHTS TO REDUCE KNOWLEDGE TESTS

1. Sum the weights for each hands-on task test and each knowledge task test. Each hands-on test will sum to between -4 and 5; each knowledge test will sum to between -4 and 4. (In practice, they both top out at about one or two.) Any test with summed weights below -1 is by definition weak, for purposes of the final adjustment steps.

2. Compare revised hands-on and knowledge tests of each task to identify points of content overlap. For each task, note the number of knowledge items not covered by the hands-on tests.

3. Reduce the knowledge tests by following the steps in below. After each step, check the number of knowledge items. Continue the process until that number is 60% - 75% of the original (field test) set (depending on the MOS). When the set of knowledge items is sufficiently reduced from the number field tested, stop. Finalize tests for proponent review.

Steps for Reducing the Knowledge Test Set

Step	If HO is:	And K is:	And r is:	Then the Rule is:
1a	weak	good	---	Test K and HO
1b	none	any	---	Test K
2	good	weak	---	Test K' and HO
3	weak	weak	---	Test K' and HO
4	good	good	high	Test K' and HO
5	good	weak	---	Test HO (drop K')
6	good	good	low	Test K' and HO
7	good	good	high	Test HO (drop K')

NOTE: HO is a hands-on test field-tested in any MOS.
K is a knowledge test.
K' is a knowledge test reduced for hands-on overlap.
r is hands-on correlation with knowledge.

Count items after each step; stop when number of items is reduced to target number.

Figure N-2. Steps for Using Weights to Reduce Knowledge Tests

APPENDIX O

Distributions of Knowledge Items on Difficulty and Item-Total Correlation in Nine MOS

DISTRIBUTIONS OF KNOWLEDGE TEST ITEMS ON DIFFICULTY AND ITEM-TOTAL CORRELATION

13B - CANNON CREWMAN

DIFFICULTY	ITEM-TOTAL CORRELATION -.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	.81-1.00	TOTAL
.01 - .20	0	1	6	2	0	0	9
.21 - .40	1	2	10	3	0	0	16
.41 - .60	0	15	83	12	10	0	120
.61 - .80	1	1	24	14	5	0	45
.81 - 1.00	0	0	15	10	19	2	46
TOTAL	2	19	138	41	34	2	236

64C - MOTOR TRANSPORT OPERATOR

DIFFICULTY	ITEM-TOTAL CORRELATION -.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	.81-1.00	TOTAL
.01 - .20	0	1	6	1	0	0	8
.21 - .40	1	5	12	0	0	0	18
.41 - .60	1	12	46	4	0	0	63
.61 - .80	0	2	18	7	4	0	31
.81 - 1.00	0	3	24	9	9	1	46
TOTAL	2	23	106	21	13	1	166

71L - ADMINISTRATIVE SPECIALIST

DIFFICULTY	ITEM-TOTAL CORRELATION -.39--.20	-.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	TOTAL
.01 - .20	0	0	2	8	1	2	13
.21 - .40	1	4	3	8	0	0	16
.41 - .60	0	1	12	44	9	4	70
.61 - .80	0	0	4	28	5	4	41
.81 - 1.00	0	0	2	23	2	3	30
TOTAL	1	5	23	111	17	13	170

95B - MILITARY POLICE

DIFFICULTY	ITEM-TOTAL CORRELATION -.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	TOTAL
.01 - .20	1	1	5	0	3	10
.21 - .40	0	3	10	0	1	14
.41 - .60	1	6	32	4	4	47
.61 - .80	0	3	19	1	2	25
.81 - 1.00	4	5	47	15	10	81
TOTAL	6	18	113	20	20	177

11B - INFANTRYMAN

DIFFICULTY	ITEM-TOTAL CORRELATION -.39--.20	-.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	.81-1.00	TOTAL
.01 - .20	5	2	3	8	0	1	1	20
.21 - .40	1	3	5	7	2	0	0	18
.41 - .60	1	4	19	53	13	9	0	99
.61 - .80	0	1	5	35	5	2	0	48
.81 - 1.00	0	1	2	25	8	6	1	43
TOTAL	7	11	34	128	28	18	2	228

19E - ARMOR CREWMAN

DIFFICULTY	ITEM-TOTAL CORRELATION -.39--.20	-.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	.81-1.00	TOTAL
.01 - .20	2	1	1	3	0	0	0	7
.21 - .40	0	5	5	6	2	0	0	18
.41 - .60	0	6	19	32	3	7	0	67
.61 - .80	0	1	10	14	5	1	0	31
.81 - 1.00	0	3	6	34	10	28	1	82
TOTAL	2	16	41	89	20	36	1	205

31C - SINGLE CHANNEL RADIO OPERATOR

DIFFICULTY	ITEM-TOTAL CORRELATION -.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	TOTAL
.01 - .20	2	9	4	0	0	15
.21 - .40	5	6	10	1	0	22
.41 - .60	0	13	54	3	10	80
.61 - .80	2	2	26	4	6	40
.81 - 1.00	1	2	29	11	11	54
TOTAL	10	32	123	19	27	211

63B - LIGHT WHEEL VEHICLE MECHANIC

DIFFICULTY	ITEM-TOTAL CORRELATION -.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	.81-1.00	TOTAL
.01 - .20	1	3	2	0	0	0	6
.21 - .40	2	5	6	0	2	0	15
.41 - .60	4	17	36	2	8	1	68
.61 - .80	3	4	23	8	4	0	42
.81 - 1.00	2	9	41	7	7	0	66
TOTAL	12	38	108	17	21	1	197

91A - MEDICAL SPECIALIST

DIFFICULTY	ITEM-TOTAL CORRELATION -.39--.20	-.19-0.0	.01-.20	.21-.40	.41-.60	.61-.80	TOTAL
.01 - .20	2	1	2	3	0	0	8
.21 - .40	0	2	4	9	0	0	15
.41 - .60	0	3	12	51	3	4	73
.61 - .80	0	2	5	32	6	4	49
.81 - 1.00	0	1	8	49	17	16	91
TOTAL	1	5	23	111	17	13	170